



# FATIGUE SURVIVAL TOOLBOX

2010 CALENDAR

FOR

AVIATION MAINTENANCE TECHNICIANS





# FATIGUE IN AVIATION MAINTENANCE

## FATIGUE IN AVIATION MAINTENANCE

Some in the aviation industry continue to see fatigue as a normal and unavoidable part of aviation maintenance. They consider that with enough effort, tired workers can continue to perform their jobs effectively. However, the evidence shows that fatigue has a very real detrimental impact on safety in aviation and in many other industries nationwide. One way to reduce fatigue is to look after yourself – ensure you get enough sleep, eat well, take precautions when driving and stay physically fit. This fatigue survival toolbox provides some practical tools that will help you stay healthy and reduce fatigue.

## WHAT IS FATIGUE AND ARE YOU AT RISK?

Fatigue is mental or physical exhaustion that can affect your health and increase your chances of having a workplace accident. Fatigue is primarily caused by lack of sleep or poor quality sleep. You are more likely to be at risk of fatigue if you:

- Are a shift worker
- Work a lot of overtime
- Have irregular and unpredictable working hours.

If you fit into any of these categories, you will benefit from the tools found in this fatigue survival toolbox.





## HOW TO KNOW WHEN YOU ARE FATIGUED

Fatigue-related symptoms can be divided into three categories: physical, mental, and emotional. If you experience two or more of the symptoms listed below, you may be experiencing some level of fatigue or reduced alertness. If you exhibit fatigue-related symptoms on a regular basis, you should consider seeing a doctor.

### PHYSICAL SYMPTOMS

- YAWNING REPEATEDLY
- HEAVY EYELIDS
- EYE-RUBBING
- HEAD DROOPING
- MICROSLEEPS
- HEADACHES, NAUSEA, OR UPSET STOMACH
- SLOWED REACTION TIME
- LACK OF ENERGY

### MENTAL SYMPTOMS

- DIFFICULTY CONCENTRATING ON TASKS
- LAPSES IN ATTENTION
- FAILURE TO COMMUNICATE IMPORTANT INFORMATION
- FAILURE TO ANTICIPATE EVENTS OR ACTIONS
- MAKING MISTAKES EVEN ON WELL-PRACTICED TASKS

### EMOTIONAL SYMPTOMS

- MORE QUIET OR WITHDRAWN THAN NORMAL
- LACK OF MOTIVATION TO DO THE TASK WELL
- IRRITABLE OR GRUMPY WITH COLLEAGUES, FAMILY, OR FRIENDS
- LOW MORALE





# QUICK GUIDE TO MX REGULATIONS\*

Definitions and Abbreviations (Part 1)

General Requirements (Part 3)

Sec. 3.5: Statements about products, parts, appliances and materials

Certification Procedures for Products and Parts (Part 21)

Airworthiness Standards: Normal, Utility, Acrobatic, and Commuter  
Category Airplanes (Part 23)

Airworthiness Standards: Transport Category Airplanes (Part 25)

Continued Airworthiness and Safety Improvements for Transport  
Category Airplanes (Part 26)

Airworthiness Standards: Normal Category Rotorcraft (Part 27)

Airworthiness Standards: Transport Category Rotorcraft (Part 29)

Airworthiness Standards: Aircraft Engines (Part 33)

Airworthiness Standards: Propellers (Part 35)

Airworthiness Directives (Part 39)

Maintenance, Preventive Maintenance, Rebuilding, and Alterations  
(Part 43)

Identification and Registration Marking (Part 45)

Certification: Airmen other than Flight Crewmembers (Part 65)

General Operating and Flight Rules (Part 91)

Subpart E--Maintenance, Preventive Maintenance, and Alterations

Operating Requirements: Domestic, Flag, and Supplemental Operations  
(Part 121)

Subpart L--Maintenance, Preventive Maintenance, and Alterations

Operating Requirements: Commuter and on demand operations and Rules  
Governing Persons on board such Aircraft (Part 135)

Subpart J--Maintenance, Preventive Maintenance, and  
Alterations

\*Title 14 of the Code of Federal Regulations (CFR)  
As of 7/21/09







# IMPORTANT DATES

# 2010

## JANUARY

1 NEW YEAR'S DAY

18 MARTIN LUTHER KING JR. DAY

## FEBRUARY

15 PRESIDENT'S DAY

20-23 HAI HELI-EXPO  
HOUSTON, TX

25-27 WOMEN IN AVIATION CONFERENCE  
ORLANDO, FL

## MARCH

16-18 AVIATION INDUSTRY EXPO  
LAS VEGAS, NV

## APRIL

7-10 AIRCRAFT ELECTRONICS  
ASSOCIATION ORLANDO, FL  
13-18 SUN'N FUN, LAKE LAND, FL

20-22 MAINTENANCE REPAIR & OVER  
HAUL CONFERENCE, PHOENIX, AZ

## MAY

9 MOTHER'S DAY

24 NATIONAL AMT DAY  
CHARLES E. TAYLOR'S BIRTHDAY  
25-26 REGIONAL AIRLINE ASSOCIATION  
CONVENTION, MILWAUKEE, WI  
25-26 22ND INT'L MX HF SYMPOSIUM  
LONDON, ENGLAND  
31 MEMORIAL DAY

## JUNE

14 FLAG DAY

20 FATHER'S DAY

## JULY

4 INDEPENDENCE DAY

26-AUG 1 EAA AIRVENTURE  
OSHKOSH, WI

## AUGUST

19 NATIONAL AVIATION DAY\*

## SEPTEMBER

6 LABOR DAY

## OCTOBER

11 COLUMBUS DAY

19-21 NATIONAL BUSINESS AVIATION  
ASSOCIATION, ATLANTA, GA

## NOVEMBER

11-13 AOPA EXPO, LONG BEACH, CA

11 VETERAN'S DAY

25 THANKSGIVING DAY

## DECEMBER

17 FIRST FLIGHT

25 CHRISTMAS DAY

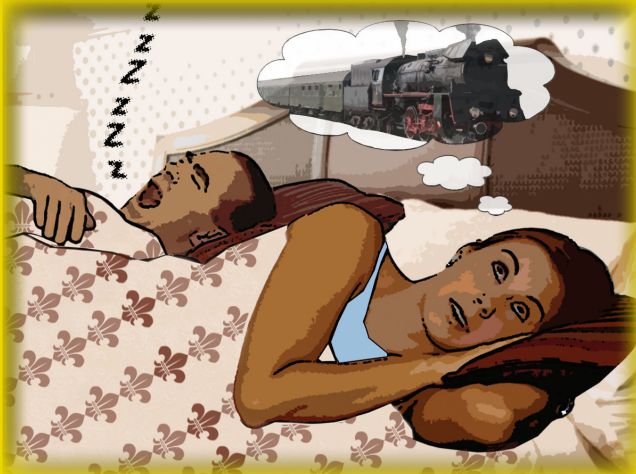
31 NEW YEAR'S EVE

\*CELEBRATED ON ORVILLE WRIGHT'S BIRTHDAY





# GETTING ANY SLEEP?



IT'S LIKE SLEEPING WITH A FREIGHT TRAIN. YOU CAN'T!

## QUANTITY OF SLEEP

*The amount of sleep you get each night can impact your mood, health, sex drive, work quality, and safety. Evening and night-shift workers typically sleep less than day workers, so you must make sleep a priority.*

## TOOLS FOR SUCCESS

- PLAN TO GET 8 HOURS OF SLEEP EACH NIGHT.
- TWO NIGHTS OF UNINTERRUPTED SLEEP WILL WORK TO ERASE ACCUMULATED SLEEP DEBT (GETTING LESS THAN 8 HRS OF SLEEP OVER MULTIPLE NIGHTS).
- TAKE NAPS THAT WORK WITH YOUR SCHEDULE: SHORT – 45 MINUTES OR LESS, LONG – 2 HOURS OR MORE.
- TRY PHYSICAL OR MENTAL RELAXATION TECHNIQUES TO HELP YOU GET TO SLEEP (E.G., WARM BATH, SOFT MUSIC, HOT SHOWER).





# JANUARY 2010

S	M	T	W	T	F	S
					1 NEW YEAR'S DAY	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18 MARTIN LUTHER KING JR. DAY	19	20	21	22	23
24	25	26	27	28	29	30
31						





# DON'T FALL FOR IT: THE RHYTHM IS GONNA GET YOU!



IT'S 3 A.M. AND I FEEL FINE....Zzzzzz

## CIRCADIAN RHYTHM

*The circadian rhythm is your internal body clock. Some think they can reprogram their bodies because they've worked shift work for several years. Don't fall for it! Like all humans need food and water to survive, your body needs sleep. In each 24-hour cycle, your body wants to sleep when it's dark and be awake when it's light.*

## TOOLS FOR SUCCESS

- DON'T LEAVE THE MOST TEDIOUS OR BORING TASKS TO THE END OF YOUR SHIFT WHEN YOU ARE LIKELY TO FEEL DROWSY.
- PHYSICALLY MOVE AROUND OR DO LIGHT EXERCISE – TAKE A SHORT WALK, GET A DRINK OF WATER, OR USE THE RESTROOM.
- WORK WITH A BUDDY – YOU CAN TALK AND DOUBLE CHECK EACH OTHER'S WORK TO REDUCE THE LIKELIHOOD OF COMMITTING AN ERROR.
- BE AWARE THAT NATURAL CIRCADIAN LOWS ARE ROUGHLY FROM 3-5 PM AND 3-5 AM. THIS MEANS THAT YOU WILL BE AT YOUR HIGHEST FATIGUE RISK DURING THESE TIMES.





# FEBRUARY 2010

S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15 <small>PRESIDENT'S DAY</small>	16	17	18	19	20
21	22	23	24	25	26	27
28						





# WAKE ME WHEN MY SHIFT IS OVER



**I'M NOT SLEEPING.  
THIS IS CALLED TRANSCENDENTAL VEGETATION.**

## SHIFTWORK

*You may be required to work overnight shifts and long hours. This significantly contributes to fatigue. Our bodies are not programmed to work on these schedules, which can make it difficult to maintain alertness.*

## TOOLS FOR SUCCESS

- WATCH FOR SIGNS OF DROWSINESS IN EACH OTHER.
- NIGHT SHIFT WORKERS ARE MOST LIKELY TO COMMIT ERRORS BETWEEN 3 A.M. AND 5 A.M., SO EAT A HEALTHY SNACK OR WORK WITH A BUDDY TO HELP KEEP YOU ALERT.
- CHOOSE WHAT TIME OF DAY YOU ARE GOING TO SLEEP AND STICK WITH IT.
  - TRY TO SELECT A TIME THAT IS CONSISTENT WITH YOUR BODY'S NATURAL DESIRE TO SLEEP (LATE NIGHT, LATE AFTER NOON OR EARLY MORNING).
  - SLEEPING BEFORE YOUR SHIFT RATHER THAN AFTER, PROVIDES GREATER BENEFITS TO EFFECTIVENESS AND SAFETY.





# MARCH 2010

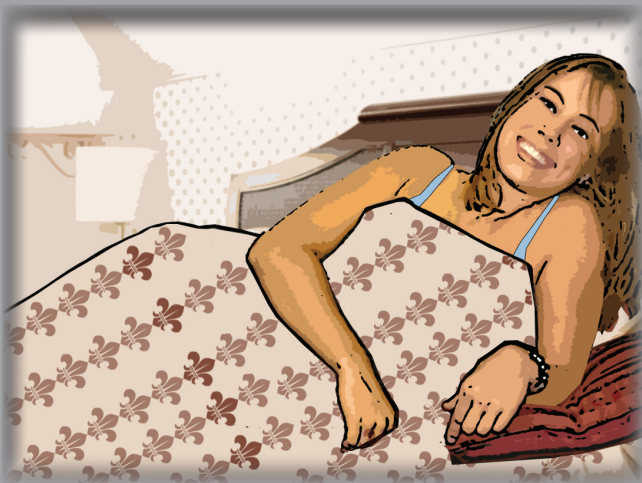
S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14 DAYLIGHT SAVING TIME BEGINS	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			







# RISE AND SHINE!



Wow, QUALITY SLEEP REALLY MAKES THE DIFFERENCE!

## QUALITY OF SLEEP

*You need high quality, uninterrupted sleep to perform optimally in all aspects of life. It is more difficult to obtain high quality sleep if you are sleeping during the day. To get quality day sleep, you need to develop a sleeping plan.*

## TOOLS FOR SUCCESS

- MAINTAIN AN ENVIRONMENT THAT IS CONDUCTIVE TO SLEEP – KEEP IT DARK, QUIET, AND COOL. IF YOU NEED BACKGROUND NOISE, TURN ON A FAN OR STATIC STATION ON THE RADIO.
- DON'T BE INTERRUPTED – LET FRIENDS, NEIGHBORS, AND FAMILY KNOW YOUR SCHEDULE, SHUT OFF THE PHONE, AND HANG A "DO NOT DISTURB" SIGN ON THE DOOR.
- RESPECT YOUR BEDTIME. MAKE A BEDTIME ROUTINE – SLEEP IN YOUR BED – NOT IN THE CHAIR!
- IF YOU WORK THE NIGHT SHIFT, AVOID BRIGHT LIGHT ON YOUR DRIVE HOME. CONSIDER WEARING SUNGLASSES.





# APRIL 2010

S	M	T <sub>L</sub>	W	T <sub>H</sub>	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	





# WHAT'S YOUR GAME PLAN?



## FAMILY GAME NIGHT?

### FAMILY/SOCIAL LIFE

*Your work schedule may make it difficult to meet family and social responsibilities. To improve your personal life, you must have a game plan for getting 7-8 hours of sleep in each 24-hour period.*

### TOOLS FOR SUCCESS

- PLAN TIME FOR FAMILY ACTIVITIES OR SOCIAL EVENTS.
- DISCUSS YOUR WORK AND SLEEP SCHEDULE WITH FAMILY/FRIENDS SO THEY UNDERSTAND YOUR NEED FOR SLEEP.
- PLAN TIME FOR SLEEP. STICK TO YOUR SLEEP SCHEDULE EVEN ON YOUR DAYS OFF.
- MAKE "DATES" WITH YOUR PARTNER OR CHILDREN TO SHARE SPECIAL ACTIVITIES.
- DEVELOP A CIRCLE OF FRIENDS WHO UNDERSTAND YOUR WORK SCHEDULE AND ARE WILLING TO BE FLEXIBLE TO SPEND TIME WITH YOU.





MAY 2010

S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S	1
	2	3	4	5	6	7	8
9	10	11	12	13	14	15	
MOTHER'S DAY							
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31						
MEMORIAL DAY							





# OVERTIME MIGHT COST YOU!



EVERYTHING IS FINE. I DON'T NEED TO STOP FOR A  
NAP. I'LL BE HOME IN ABOUT AN HOUR.

## OVERTIME

*Working overtime can put money in your pocket, but you'll pay a penalty with your family, your health, and the quality of your workmanship. You may even pay the ultimate price by literally driving yourself to death. Staying awake for 20 continuous hours results in performance that is equivalent to being legally drunk (.10 BAC).*

## TOOLS FOR SUCCESS

- TRY TO LIMIT THE AMOUNT OF OVERTIME YOU WORK.
- IF YOU COMMUTE AFTER WORKING OVERTIME, DRINK A CAFFEINATED BEVERAGE AND TAKE A QUICK 15-20 MINUTE NAP 30 MINUTES BEFORE THE CAFFEINE KICKS IN AND YOU DRIVE HOME.
- WHEN WORKING EXTRA HOURS, TAKE FREQUENT BREAKS TO COMBAT THE EFFECTS OF FATIGUE.
- SPEND YOUR TIME AND MONEY WISELY. MAKE A BUDGET AND BREAK BAD SPENDING HABITS.





# JUNE 2010

S	M	T <sub>L</sub>	W	T <sub>H</sub>	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14 FLAG DAY	15	16	17	18	19
20 FATHER'S DAY	21	22	23	24	25	26
27	28	29	30			





## ARE YOU SICK AND TIRED OF BEING SICK AND TIRED?



REALLY, I FEEL FINE, I JUST NEED TO FINISH THIS BRAKE JOB, GO HOME AND MOW THE LAWN, GO TO MY KIDS' SCHOOL PLAY, WORK ON THE CAR, AND...

### ILLNESS

*If you are pushing yourself to the limit, you are more likely to get sick. Sickness and/or medications can disrupt sleep and lead to higher levels of fatigue.*

### TOOLS FOR SUCCESS

- EAT WELL, EXERCISE, AND GET SUFFICIENT REST TO PREVENT ILLNESS.
- IF YOU DO GET SICK, ADMIT IT, AND TAKE CARE OF YOURSELF. BE CAREFUL NOT TO SPREAD CONTAGIOUS ILLNESSES TO OTHERS.
- COMMUNICATE WITH YOUR DOCTOR. LET HIM/HER KNOW THAT YOU ARE A SHIFT WORKER SO YOU DO NOT RECEIVE MEDICATIONS THAT WILL DISRUPT YOUR SLEEP.
- KNOW THE SIDE EFFECTS OF YOUR MEDICATIONS AND BE SAFE!



### WARNING



ADULTS WHO HAD 8+ HOURS OF SLEEP WERE 3X LESS LIKELY TO GET SICK THAN THOSE WHO SLEPT 7 OR LESS HOURS.







JULY 2010

S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S
				1	2	3
4 <small>INDEPENDENCE DAY</small>	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31





# UNDER PRESSURE TO PERFORM?



MAKE GATE IN 20 MINUTES? NO PROBLEM.  
JUST LOG IT UNDER 'WHEN PIGS FLY.'

## TIME PRESSURE AT WORK

*You may be under constant pressure to "make gate" or "make a delivery." Time pressure can lead to fatigue and has the potential to decrease your quality of work and quality of life.*

## TOOLS FOR SUCCESS

- TRY TO ALTERNATE BETWEEN EASIER AND MORE CHALLENGING TASKS TO ALLOW FOR A MENTAL BREAK.
- TAKE A QUICK FIVE-MINUTE BREAK TO GET SOME FRESH AIR.
- DON'T PUSH YOURSELF TO THE LIMIT. LET OTHERS KNOW IF YOU ARE WORKING FATIGUED.
- HAVE CONFIDENCE IN THE AMOUNT OF TIME YOU HAVE TO DO THINGS. FOCUS ON THE TASK, NOT THE TIME.





# AUGUST 2010

S	M	T <sub>L</sub>	W	T <sub>H</sub>	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19 NATIONAL AVIATION DAY	20	21
22	23	24	25	26	27	28
29	30	31				





# DON'T JUST WING IT



URGH...MAYBE I SHOULD SKIP DESSERT?

## NUTRITION

*Don't "wing it." Make a plan for eating the right foods at the right time. A plan for proper nutrition can go a long way toward maintaining alertness levels and combating fatigue. Our bodies need to be strategically fueled to perform at optimal capacity.*

## TOOLS FOR SUCCESS

- HAVE A GOOD NUTRITIOUS MEAL BEFORE YOU BEGIN YOUR SHIFT. IF YOUR CAFETERIA DOES NOT OFFER HEALTHY CHOICES, BRING A HEALTHY MEAL FROM HOME.
- HAVE A HEALTHY SNACK DURING YOUR SLEEPYEST PERIOD (3-5 PM AND 3-5 AM).
- IF YOU FEEL TIRED AT WORK, EAT A HIGH PROTEIN, LOW CARB SNACK.



## WARNING



SLEEPING LESS THAN 8 HOURS PER NIGHT HAS BEEN LINKED TO INCREASED APPETITE AND WEIGHT GAIN.





# SEPTEMBER 2010

S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S
			1	2	3	4
5	6 LABOR DAY	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		





# CHOOSE YOUR FUEL WISELY



I'LL HELP YOU WITH THAT WIRING HARNESS IN A MINUTE. I'M GETTING MY CAFFEINE FIX.

## CAFFEINE & ALCOHOL

*You may be fighting to keep your job and working to stay awake at any cost. To work safely and successfully, you should be aware that alcohol and caffeine can reduce your quality of sleep.*

## TOOLS FOR SUCCESS

- AVOID ALCOHOL AND CAFFEINE APPROXIMATELY 4-6 HOURS BEFORE BED. BOTH CAFFEINE AND ALCOHOL CAN DISRUPT YOUR SLEEP CYCLE.
- USE CAFFEINE STRATEGICALLY - TAKE ENERGY SUPPLEMENTS (E.G., COFFEE, ENERGY DRINKS, PILLS) EARLY IN YOUR SHIFT, SO YOU CAN HAVE QUALITY SLEEP AT HOME.



## WARNING



ALTHOUGH ALCOHOL WILL MAKE YOU FEEL DROWSY, CONSUMPTION OF ALCOHOL CAN REDUCE QUALITY AND QUANTITY OF SLEEP. ALCOHOL ALSO RESULTS IN THE NEED FOR FREQUENT TRIPS TO THE BATHROOM.





# OCTOBER 2010

S	M	T <sub>L</sub>	W	T <sub>H</sub>	F	S
					1	2
3	4	5	6	7	8	9
10	11 COLUMBUS DAY	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						







# STRESSED OUT?



**THIS GUY IS STRESSING ME OUT!**

## STRESS

*You most likely experience some level of emotional stress at work or at home. There is a connection between stress and fatigue, especially when emotional stress is severe or long lasting. There is a mind body connection. How you cope with your stress will significantly influence your fatigue level and overall emotional well being.*

## TOOLS FOR SUCCESS

- LEAVE YOUR JOB AT WORK WHEN YOU GO HOME. FOCUS ON THE HERE AND NOW AND ENJOY ALL ASPECTS OF YOUR LIFE.
- COMMUNICATE WITH YOUR SUPERVISOR AT WORK OR SPOUSE AT HOME WHEN SUFFERING FROM HIGH LEVELS OF STRESS.
- ENJOY STRESS REDUCING ACTIVITIES SUCH AS REGULAR EXERCISE, MUSIC, MEDITATION, MASSAGE, SEX, AND JUST SMILING.
- RECOGNIZE WHAT YOU CANNOT CHANGE, AND DO NOT TAKE ON MORE THAN YOU CAN HANDLE.





# NOVEMBER 2010

S	M	T <sub>U</sub>	W	T <sub>H</sub>	F	S
	1	2	3	4	5	6
7 DAYLIGHT SAVING TIME ENDS	8	9	10	11 VETERAN'S DAY	12	13
14	15	16	17	18	19	20
21	22	23	24	25 THANKSGIVING DAY	26	27
28	29	30				





# DO YOU HAVE A HANDLE ON FITNESS?



SO, WHAT'S STOPPING YOU?

## LACK OF EXERCISE

*If you work long hours, you may neglect your physical fitness. Regular physical activity will improve your sleep, make you feel healthier, and increase your alertness.*

## TOOLS FOR SUCCESS

- TOSSING A FOOTBALL, WALKING AT WORK, PLAYING WITH THE KIDS, AND OTHER PHYSICAL ACTIVITIES CAN GIVE YOU ALMOST AS MUCH EXERCISE AS A TRIP TO THE GYM.
- DO STRETCHING ACTIVITIES WHILE YOU WATCH TV OR ARE ON BREAK AT WORK.
- MAKE ONE NIGHT OF THE WEEK FAMILY ACTIVITY NIGHT. ASK THE KIDS TO SUGGEST ACTIVITIES THEY WOULD ENJOY OR INVENT AN ACTIVE GAME THE WHOLE FAMILY WILL ENJOY.





# DECEMBER 2010

S	M	T <sub>L</sub>	W	T <sub>H</sub>	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	CHRISTMAS DAY
					NEW YEAR'S EVE	





# TAP AND DRILL CHART

Thread	Drill		Thread	Drill		Thread	Drill
0-80	3/64	■	1/4-20	7	■	1-12	59/64
1-64	53	■	1/4-28	3	■	1 1/8-7	63/64
1-72	53	■	5/16-18	F	■	1 1/8-12	1-3/64
2-56	50*	■	5/16-24	I	■	1 1/4-7	1-7/64
2-64	50	■	3/8-16	5/16	■	1 1/4-12	1-11/64
3-48	47*	■	3/8-24	Q	■	1 3/8 -6	1-7/32
3-56	45*	■	7/16-14	U	■	1 3/8-12	1-19/64
4-40	43	■	7/16-20	25/64*	■	1 1/2 -6	1-11/32
4-48	42	■	1/2-13	27/64	■	1 1/2-12	1-27/64
5-40	38*	■	1/2-20	29/64	■	1 3/4 -5	1-9/16
5-44	37	■	9/16-12	31/64	■	2" - 4 1/2	1-25/32
6-32	36	■	9/16-18	33/64	■	2 1/4-4 1/2	2-1/32
6-40	33	■	5/8-11	17/32	■	2 1/2 - 4	2-1/4
8-32	29	■	5/8-18	37/64	■	2 3/4 - 4	2-1/2
8-36	29	■	3/4-10	21/32	■	3" - 4	2-3/4
10-24	25	■	3/4-16	11/16	■	3 1/4-4	3 "
10-32	21	■	7/8-9	49/64	■	3 1/2-4	3-1/4
12-24	16*	■	7/8-14	13/16	■	3 3/4-4	3-1/2
12-28	14*	■	1" -8	7/8	■	4" - 4	3-3/4
		■	1" -14	15/16	■		

\*SOME SOURCES SUGGEST THE NEXT SIZE SMALLER THAN THESE SIZES.





# ANSI DRILL SIZES

Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal	Drill (in.)	Decimal
80	.0135	60	.0400	3/32	.0937	24	.1520	13/64	.2031	K	.2811	X	.3970	11/16	.6875
79	.0145	59	.0410	41	.0960	23	.1540	6	.2040	9/32	.2812	Y	.4040	45/64	.7031
1/64	.0156	58	.0420	40	.0980	5/32	.1562	5	.2055	L	.2900	13/32	.4062	23/32	.7187
78	.0160	57	.0430	39	.0995	22	.1570	4	.2090	M	.2950	Z	.4130	47/64	.7344
77	.0180	56	.0465	38	.1015	21	.1590	3	.2130	19/64	.2968	27/64	.4219	3/4	.7500
76	.0200	3/64	.0469	37	.1040	20	.1610	7/32	.2187	N	.3020	7/16	.4375	49/64	.7656
75	.0210	55	.0520	36	.1065	19	.1660	2	.2210	5/16	.3125	29/64	.4531	25/32	.7812
74	.0225	54	.0550	7/64	.1093	18	.1695	1	.2280	O	.3160	15/32	.4687	51/64	.7969
73	.0240	53	.0595	35	.1100	11/64	.1719	A	.2340	P	.3230	31/64	.4844	13/16	.8125
72	.0250	1/16	.0625	34	.1110	17	.1730	15/64	.2344	21/64	.3281	1/2	.5000	53/64	.8281
71	.0260	52	.0635	33	.1130	16	.1770	B	.2380	Q	.3320	33/64	.5156	27/32	.8437
70	.0280	51	.0670	32	.1160	15	.1800	C	.2420	R	.3390	17/32	.5312	55/64	.8594
69	.0292	50	.0700	31	.1200	14	.1820	D	.2460	11/32	.3437	35/64	.5469	7/8	.8750
68	.0310	49	.0730	1/8	.1250	13	.1850	E	.2500	S	.3480	9/16	.5625	57/64	.8906
1/32	.0313	48	.0760	30	.1285	3/16	.1875	1/4	.2500	T	.3580	37/64	.5781	29/32	.9062
67	.0320	5/64	.0781	29	.1360	12	.1890	F	.2570	23/64	.3594	19/32	.5937	59/64	.9219
66	.0330	47	.0785	28	.1405	11	.1910	G	.2610	U	.3680	39/64	.6094	15/16	.9375
65	.0350	46	.0810	9/64	.1406	10	.1935	17/64	.2656	3/8	.3750	5/8	.6250	61/64	.9531
64	.0360	45	.0820	27	.1440	9	.1960	H	.2660	V	.3770	41/64	.6406	31/32	.9687
63	.0370	44	.0860	26	.1470	8	.1990	I	.2720	W	.3860	21/32	.6562	63/64	.9844
62	.0380	43	.0890	25	.1495	7	.2010	J	.2770	25/64	.3906	43/64	.6719	1	1.0000
61	.0390	42	.0935												





# HOW TO COUNT YOUR SLEEP

Sleep is the **only** cure for fatigue. Many of us overestimate the amount of sleep we get each night. If you have difficulty falling asleep, wake-up during the night, or wake-up un-refreshed, keep a sleep log to count how much sleep you really get each night.

**Step 1:** Complete the following log over a two week period. For the period **MON/TUE**, indicate your **bedtime** Monday night and your **wake time** on Tuesday morning. Treat other time periods similarly. Indicate your bedtime and wake time on the **bolded** day if you obtain your sleep within 1 day (e.g. Monday for **MON/TUE**).

	MON/TUE	TUE/WED	WED/THU	THU/FRI	FRI/SAT	SAT/SUN	SUN/MON
Week 1	<b>Bedtime</b>						
	<i>Wake time</i>						
	Total Sleep Time						
	MON/TUE	TUE/WED	WED/THU	THU/FRI	FRI/SAT	SAT/SUN	SUN/MON
Week 2	<b>Bedtime</b>						
	<i>Wake time</i>						
	Total Sleep Time						

**Step 2:** Calculate your average sleep time (add your total sleep time in each column and divide by 14).

**Step 3:** Subtract 30 minutes from your average sleep time (to account for time it takes to actually fall asleep and wake up).

**Step 4:** If your adjusted average sleep time is less than 8 hours, re-evaluate your plan for sleep.

Average Sleep =

Adjusted Average Sleep =

**Step 5:** Keep this record and revisit your sleep schedule every 3 months.

\*For additional information on this chart go to [mxfatigue.com](http://mxfatigue.com).







# NOTES (REFER TO CURRENT JOB CARD FOR AIRCRAFT SPECS.)

A large, empty gray rectangular area intended for handwritten or printed notes. It is bordered by a yellow and black diagonal striped pattern at the top and bottom.



## NOTES



AVIATION SAFETY BEGINS ON THE GROUND, AND IN THE HANGAR. AS AN AMT, YOU ARE AN INVALUABLE MEMBER OF THE AVIATION SAFETY TEAM. HAVING THE PROPER “TOOLS” TO DO YOUR JOB INVOLVES MORE THAN JUST FILLING YOUR TOOL BOX WITH NICE, SHINY WRENCHES. THE FAA SAFETY TEAM (FAASTEAM) IS COMMITTED TO HELPING YOU ACHIEVE THE HIGHEST LEVEL OF SAFETY BY PROVIDING “TOOLS” AND RESOURCES TO ENHANCE YOUR KNOWLEDGE AND PROFICIENCY.





*Skilled?  
Knowledgeable?  
Capable?*



*Prove it.*

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# FATIGUE RISK INDEX\*

## STEP 1: SLEEP IN PRIOR 24 HOURS

SLEEP	≤ 2H	3H	4H	5+H
POINTS	12	8	4	0

## STEP 2: SLEEP IN PRIOR 48 HOURS

SLEEP	≤ 8H	9H	10H	11H	12+H
POINTS	8	6	4	2	0

## STEP 3: HOURS AWAKE SINCE LAST SLEEP

IF SLEEP IN STEP 2 IS GREATER THAN HOURS AWAKE, POINTS = 0.

IF LESS, ADD 1 POINT PER HOUR AWAKE GREATER THAN SLEEP IN STEP 2.

## STEP 4: TOTAL POINTS TO DETERMINE YOUR SCORE

SCORE	ACTION
1-4	KEEP AN EYE ON YOURSELF
5-8	HAVE SOMEONE KEEP AN EYE ON YOU
9+	GO TO BED

\*USED BY MANY IN THE TRANSPORTATION INDUSTRY TO ASSESS FATIGUE RISK.

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